



BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – MCA-2020/MCA-2021

Course Name – Data Communication & Computer Networks

Course Code - MCA301

(Semester III)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify the dedicated physical layer devices
 - a) Hub & Switch
 - b) Hub & multiplexer
 - c) ATM switch & MUX
 - d) Repeater & Router
- (ii) Identify in which transmission media has the highest transmission speed in a network?
 - a) coaxial cable
 - b) twisted pair cable
 - c) optical fiber
 - d) electrical cable
- (iii) Name the topology requires a central controller or hub
 - a) Mesh
 - b) star
 - c) ring
 - d) bus
- (iv) Name the method of communication in which transmission takes place in both directions, but only in one direction at a time
 - a) Simplex
 - b) full-duplex
 - c) four-wire circuit
 - d) half-duplex
- (v) Determine the layer in which Routers functions ?
 - a) physical and data link
 - b) physical, data link and network
 - c) data link and network
 - d) network and transport
- (vi) In Ethernet when Manchester encoding is used, Calculate the bit rate
 - a) Half the baud rates
 - b) Twice the baud rate
 - c) Same as the baud rate
 - d) none of these
- (vii) Describe the bandwidth of a signal whose lower frequency is 20 KHz and upper frequency is 60 KHz?
 - a) 80 KHz
 - b) 3 KHz
 - c) 1200 KHz
 - d) 40 KHz
- (viii) Compute the maximum efficiency of Pure ALOHA
 - a) 0.18
 - b) 0.37

- c) 0.1
d) None of these
- (ix) Calculate the number of channel throughput of Slotted ALOHA will be in comparison to Pure ALOHA?
a) Same
b) Double
c) Three times
d) None of these
- (x) A multistation access unit is most often used in _____ LAN . Select the option.
a) An Ethernet
b) A Token Ring
c) An FDDI
d) An Ethernet and A Token Ring
- (xi) Illustrate that ARP is a -
a) TCP/IP protocol used to dynamically bind a high level IP address to a low level physical hardware address
b) TCP/IP high level protocols for transferring files from one machine to another
c) Protocol used to monitor computers
d) Protocol that handles error and control messages
- (xii) Choose the correct option --The network layer concerns with
a) bits
b) frames
c) packets
d) None of these
- (xiii) Write which one of the following routing algorithm can be used for network layer design-
a) shortest path algorithm
b) distance vector routing
c) link state routing
d) All of these
- (xiv) Conclude which one of the following is not a function of network layer?
a) routing
b) inter- networking
c) congestion control
d) None of these
- (xv) Write the level , where the network layer is in the OSI model.
a) Third level
b) Fourth level
c) Second level
d) Fifth layer

Group-B
(Short Answer Type Questions)

3 x 5=15

2. What is the number of bits in an IPv4 and IPv6 address? (3)
3. Write the explanation of VPN. (3)
4. What are the different ways to exchange data? (3)
5. Express the main elements of a protocol. (3)
6. What is a Proxy Server and how do they protect the computer network? (3)

OR

What are Ipconfig and If config? (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Compare TCP and UDP, which one is more reliable and why? (5)
8. Assess port address and a socket address (5)
9. Discuss the structure of a fiber optic cable (5)
10. What happens when you type www.google.com in the browser and press enter? (5)
11. Explain classless and classful IP address (5)
12. What is the required bandwidth of a low-pass channel if we need to send 1 Mbps by using base Band Transmission? (5)

OR

Define OSI and TCP/IP reference model. (5)

Library
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